

$f_2(1810)$ $I^G(J^{PC}) = 0^+(2^{++})$

OMMITTED FROM SUMMARY TABLE

Needs confirmation.

NODE=M038

NODE=M038

NODE=M038M

NODE=M038M

 $f_2(1810)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1815±12 OUR AVERAGE				Error includes scale factor of 1.4. See the ideogram below.
1737± 9 ⁺¹⁹⁸ ₋₆₅		1 UEHARA	10A BELL	10.6 $e^+ e^- \rightarrow e^+ e^- \eta\eta$
1800±30	40	ALDE	88D GAM4	300 $\pi^- p \rightarrow \pi^- p 4\pi^0$
1806±10	1600	ALDE	87 GAM4	100 $\pi^- p \rightarrow 4\pi^0 n$
1870±40		2 ALDE	86D GAM4	100 $\pi^- p \rightarrow \eta\eta n$
1857 ⁺³⁵ ₋₂₄		3 COSTA...	80 OMEG	10 $\pi^- p \rightarrow K^+ K^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1858 ⁺¹⁸ ₋₇₁		4 LONGACRE	86 RVUE	Compilation
1799±15		5 CASON	82 STRC	8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$

1 Breit-Wigner mass.

2 Seen in only one solution.

3 Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.

4 From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

5 From an amplitude analysis of the reaction $\pi^+ \pi^- \rightarrow 2\pi^0$. The resonance in the $2\pi^0$ final state is not confirmed by PROKOSHIN 97.

NODE=M038M;LINKAGE=UE

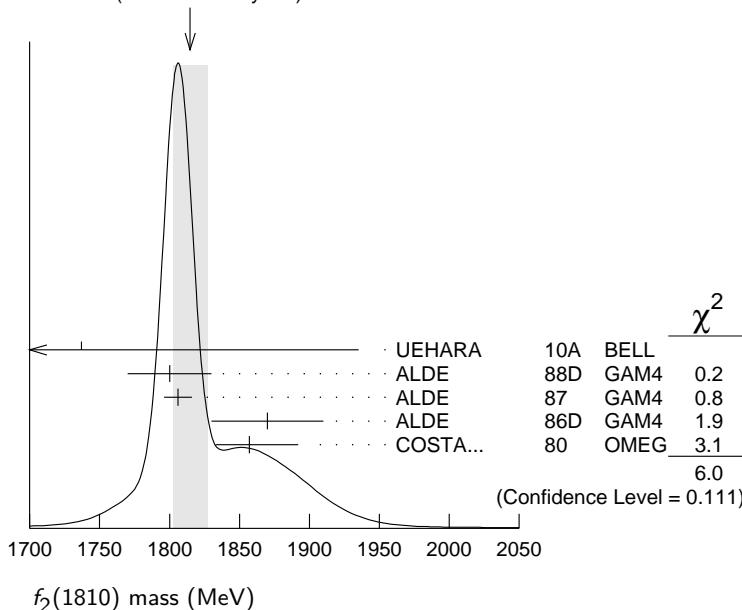
NODE=M038M;LINKAGE=F

NODE=M038M;LINKAGE=A

NODE=M038M;LINKAGE=L

NODE=M038M;LINKAGE=P1

WEIGHTED AVERAGE
1815±12 (Error scaled by 1.4)

 $f_2(1810)$ mass (MeV)

NODE=M038W

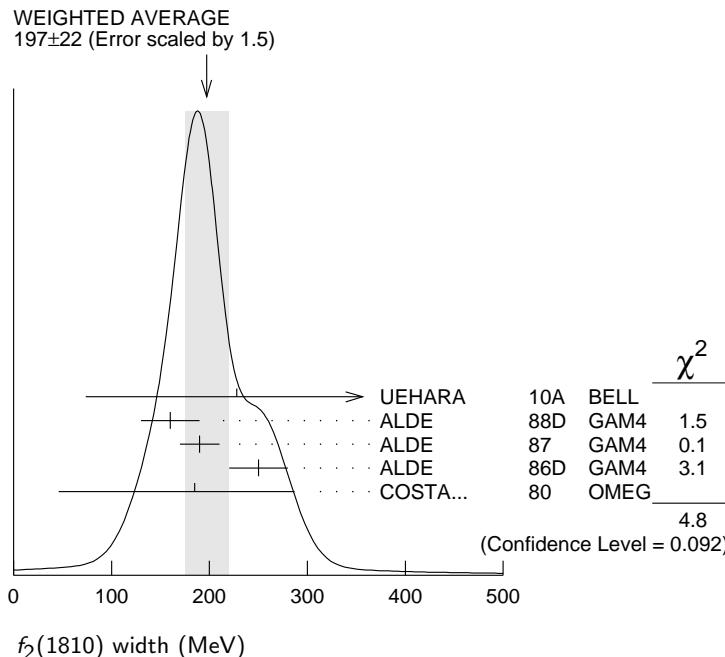
NODE=M038W

 $f_2(1810)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
197± 22 OUR AVERAGE				Error includes scale factor of 1.5. See the ideogram below.
228 ^{+ 21 +234} _{- 20 -153}		6 UEHARA	10A BELL	10.6 $e^+ e^- \rightarrow e^+ e^- \eta\eta$
160± 30	40	ALDE	88D GAM4	300 $\pi^- p \rightarrow \pi^- p 4\pi^0$
190± 20	1600	ALDE	87 GAM4	100 $\pi^- p \rightarrow 4\pi^0 n$
250± 30		7 ALDE	86D GAM4	100 $\pi^- p \rightarrow \eta\eta n$
185 ⁺¹⁰² ₋₁₃₉		8 COSTA...	80 OMEG	10 $\pi^- p \rightarrow K^+ K^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
388 ^{+ 15} _{- 21}		9 LONGACRE	86 RVUE	Compilation
280 ^{+ 42} _{- 35}		10 CASON	82 STRC	8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$

- 6 Breit-Wigner width.
 7 Seen in only one solution.
 8 Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.
 9 From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.
 10 From an amplitude analysis of the reaction $\pi^+ \pi^- \rightarrow 2\pi^0$. The resonance in the $2\pi^0$ final state is not confirmed by PROKOSHKIN 97.

NODE=M038W;LINKAGE=UE
 NODE=M038W;LINKAGE=F
 NODE=M038W;LINKAGE=A
 NODE=M038W;LINKAGE=L
 NODE=M038W;LINKAGE=P1



f₂(1810) DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \pi\pi$	
$\Gamma_2 \eta\eta$	
$\Gamma_3 4\pi^0$	seen
$\Gamma_4 K^+ K^-$	
$\Gamma_5 \gamma\gamma$	seen

NODE=M038215;NODE=M038

DESIG=2
 DESIG=3
 DESIG=4;OUR EST;→ UNCHECKED ←
 DESIG=1
 DESIG=5;OUR EST;→ UNCHECKED ←

NODE=M038225

NODE=M038G01
 NODE=M038G01

NODE=M038G01;LINKAGE=UE

NODE=M038220

NODE=M038R2
 NODE=M038R2

NODE=M038R2;LINKAGE=L

NODE=M038R;LINKAGE=C

f₂(1810) $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(\eta\eta) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	$\Gamma_2\Gamma_5/\Gamma$
5.2 ^{+0.9} _{-0.8} ^{+37.3} _{-4.5}	11 UEHARA	10A BELL	$10.6 e^+ e^- \rightarrow e^+ e^- \eta\eta$

11 Including interference with the $f'_2(1525)$ (parameters fixed to the values from the 2008 edition of this review, PDG 08) and $f_2(1270)$. May also be the $f_0(1500)$.

f₂(1810) BRANCHING RATIOS

$\Gamma(\pi\pi)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	Γ_1/Γ
• • • We do not use the following data for averages, fits, limits, etc. • • •			
not seen	AMSLER 02	CBAR	$0.9 \bar{p}p \rightarrow \pi^0 \eta\eta, \pi^0 \pi^0 \pi^0$
not seen	PROKOSHKIN 97	GAM2	$38 \pi^- p \rightarrow \pi^0 \pi^0 n$
$0.21^{+0.02}_{-0.03}$	12 LONGACRE 86	RVUE	Compilation
0.44 ± 0.03	13 CASON 82	STRC	$8 \pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$

12 From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

13 Included in LONGACRE 86 global analysis.

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_2/Γ
--------------	--------------------	-------------	----------------	-------------------

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.008^{+0.028}_{-0.003}$ ¹⁴ LONGACRE 86 RVUE Compilation

14 From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

 $\Gamma(\pi\pi)/\Gamma(4\pi^0)$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_1/Γ_3
--------------	--------------------	-------------	----------------	---------------------

• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.75 ALDE 87 GAM4 100 $\pi^- p \rightarrow 4\pi^0 n$

 $\Gamma(4\pi^0)/\Gamma(\eta\eta)$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_3/Γ_2
--------------	--------------------	-------------	----------------	---------------------

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.8 ± 0.3 ALDE 87 GAM4 100 $\pi^- p \rightarrow 4\pi^0 n$

 $\Gamma(K^+K^-)/\Gamma_{\text{total}}$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_4/Γ
--------------	--------------------	-------------	----------------	-------------------

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.003^{+0.019}_{-0.002}$ ¹⁵ LONGACRE 86 RVUE Compilation

seen COSTA... 80 OMEG 10 $\pi^- p \rightarrow K^+ K^- n$

15 From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

NODE=M038R3

NODE=M038R3

NODE=M038R3;LINKAGE=L

NODE=M038R4

NODE=M038R4

NODE=M038R5

NODE=M038R5

NODE=M038R1

NODE=M038R1

NODE=M038R1;LINKAGE=L

f₂(1810) REFERENCES

UEHARA PDG AMSLER PROKOSHKIN	10A 08 02 97	PR D82 114031 PL B667 1 EPJ C23 29 SPD 42 117	S. Uehara <i>et al.</i> C. Amsler <i>et al.</i> C. Amsler <i>et al.</i> Y.D. Prokoshkin <i>et al.</i>	(BELLE Collab.) (PDG Collab.) (SERP) Translated from DANS 353 323.
ALDE	88D	SJNP 47 810 Translated from YAF 47 1273.	D.M. Alde <i>et al.</i>	(SERP, BELG, LANL, LAPP+)
ALDE	87	PL B198 286	D.M. Alde <i>et al.</i>	(LANL, BRUX, SERP, LAPP)
ALDE	86D	NP B269 485	D.M. Alde <i>et al.</i>	(BELG, LAPP, SERP, CERN+)
LONGACRE	86	PL B177 223	R.S. Longacre <i>et al.</i>	(BNL, BRAN, CUNY+)
CASON	82	PRL 48 1316	N.M. Cason <i>et al.</i>	(NDAM, ANL)
COSTA...	80	NP B175 402	G. Costa de Beauregard <i>et al.</i>	(BARI, BONN+)

NODE=M038

REFID=53641

REFID=52166

REFID=48580

REFID=45386

REFID=44652

REFID=40221

REFID=20765

REFID=20768

REFID=20746

REFID=20737